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PRELIMINARY ASSESSMENT OF LARGE LAUNCH VEHICLE SEEN AT TYURATAM

25X1A

Ballistic Missiles and Space Division
OSI/CIA

Performance capabilities of the probable missile component observed in a horizontal position on Pad G-4 at Tyuratam in [redacted] may be far in excess of those presently assessed for any Soviet missile or space launch system, according to a preliminary analysis by [redacted] This assessment is based primarily on analysis of the photography and the assumption that the first stage of the vehicle is composed of seven SS-8 engines.

25X1D

25X1A

Performance assessments based on sizing of the vehicle sighted on Pad G-4 were constrained by certain assumptions which evolved, in part, from studies of (a) relationships between launch position separation distance and total propellant weight, and (b) photographic coverage of Pad G-3 and Pad G-4 at Tyuratam.

From the first study, a total design propellant weight potential of approximately 1.5 million pounds was estimated for Pads G-3 and G-4. Such a propellant capacity was found to be consistent with the separation of Pads G-3 and G-4 in terms of separation observed at other Soviet launch areas. The second study revealed that the launch pads had a hexafoil* appearance which suggested that the first stage of the vehicle to be launched from Pad G-4 may be a clustered engine arrangement with six peripheral and one center engine. Since a large diameter 20- to 30-foot vehicle would be difficult to transport in the Soviet Union, the first stage may have seven clustered tanks rather than a single feed tank, thus permitting the mating of smaller tanks near the rangehead. An analysis of the gantry at Pads G-3 and G-4 suggested at least two platforms at the 70- to 80-foot level. These platforms would enclose the first-second interstage point. With an allowance of 10 feet for missile support, the envisioned gantry configuration is compatible with the observed probable missile components sighted on [redacted]

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Dimensions of the probable missile components have been estimated as follows (dimensional values are approximate):

Stage	Length	Diameter
1st	[redacted]	
2nd		

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* A foil design consisting of six cups.

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The performance characteristics for this vehicle were then estimated based on the assumption that seven SS-8 propulsion systems and seven tanks of [redacted] diameter make up the first stage. Based on this assumption, the resulting vehicular characteristics would be as follows:

First Stage	Propellants	LOX/UDMH
	Specific Impulse	310 Sec (Vacuum)
	Thurst	2.5 Million Pounds
	Propellant Weight	1.15 Million Pounds
	Structure Weight	150,000 Pounds
	Stage Weight	1.3 Million Pounds
Second Stage	Propellants	LOX/UDMH
	Specific Impulse	327 Sec
	Thrust	422,000 Pounds
	Propellant Weight	348,400 Pounds
	Structure Weight	36,000 Pounds
	Stage Weight	384,400 Pounds

The total propellant weight for both stages, i.e., approximately 1.5 million pounds, is in agreement with the launch position separation criteria noted previously.

The new vehicle may serve both as a space booster and as a ballistic missile. Assuming that the vehicle is used in its space role, performance calculations indicated a potential payload in-orbit (200 n.m. circular orbit) capability of approximately 37,000 pounds. This estimate is based on a 45° launch azimuth from Tyuratam. Provided a third stage were employed, the capability would be increased to approximately 56,000 pounds.

If the vehicle is a weapon system, then the following range-payload estimates are derivable:

Range (n.m.)	Payload Pounds No Residual	Payload Pounds 2 Sec Residuals
3400	78,000	67,000
4000	65,000	56,000
5000	50,000	40,000
6000	41,000	30,000
7000	36,000	25,000

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It should be emphasized that these performance characteristics and payload carrying capabilities were based on the assumptions discussed above. The estimates as derived above, therefore, do not constitute a finished analysis but, rather, represent the product of an attempt to consolidate and to provide a preliminary evaluation of the intelligence data available.

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S-15885

NEW SOVIET SOLAR RESEARCH CENTER AND ITS RELATIONSHIP TO THE MANNED SPACE PROGRAM*

25X1A

[redacted]
General Sciences Division
OSI/CIA

SUMMARY AND CONCLUSIONS

A new solar observatory installation occupies two sites on either side of the road from Irkutsk to Turta, Mongolia, very close to the Mongolian border. This location is unusually cloud free which was probably an important factor in selecting the site as a solar observatory (center for flare prediction research).

The primary purpose of the new observatory is solar activity research and flare prediction, probably in support of the Soviet manned space program. This conclusion is based on the involvement of the observatory's director, V. Ye. Stepanov, in the early phases of solar flare prediction research and the great speed with which the observatory has been built after trial predictions of solar flares had been successfully completed.

The observatory is to receive a two meter solar telescope which should be a high quality instrument. With such an instrument, it will be one of the best equipped centers for solar research in the world. Stepanov is believed to be competent to exploit the capabilities of the telescope. [redacted]

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* Reprint of Summary and Conclusions of OSI-SR/TCS 64-5, 10 November 1964, [redacted]

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S-15885

SOVIET TORPEDO TEST RANGE AT ISSYK-KUL

25X1A [redacted]
General Sciences Division
25X1A [redacted]
Defensive Systems Division
OSI/CIA

The exact location and facilities of an installation which has features compatible with those required for the testing of torpedoes have been revealed by overhead photography for the first time. The depth of the water in the area of this installation would permit only the testing of shallow, straight-running torpedoes.

The photography indicates that the facilities include a long pier pointed toward the narrow opening to the lake, a pair of troughs overslung from the pier just above the water, a high structure so placed as to permit its use as a monitoring station, a floating platform well offshore in line with the suspected launching ramp and certain other features that are found in other torpedo testing facilities. The alignment of the pier, the possible monitoring platform, and the structure atop the northeast corner of the monitor-roofed building all fall along an axis which follows an unobstructed course throughout the length of the bay and into the main body of Lake Issyk-Kul. Depths along this course range from approximately 40 meters near the head of the pier to about 65 meters at the mouth of the bay some eight nautical miles away. This course appears to avoid the nearest headland by at least 200 yards.

The relatively shallow water immediately adjacent to the pier and extending in a straight line past the float and into the lake permits the testing of shallow, straight-running torpedoes, but precludes testing of ASW torpedoes at this site. Such testing elsewhere on the lake cannot be ruled out as the depths (as great as 2000 feet) are more than adequate for the purpose. However, no evidence of such testing has been found to date.

Two organizations of the State Committee for Shipbuilding -- Plant 175, a major torpedo factory, and Kaspiysk Torpedo Plant 182 -- have used Lake Issyk-Kul for testing. [redacted]

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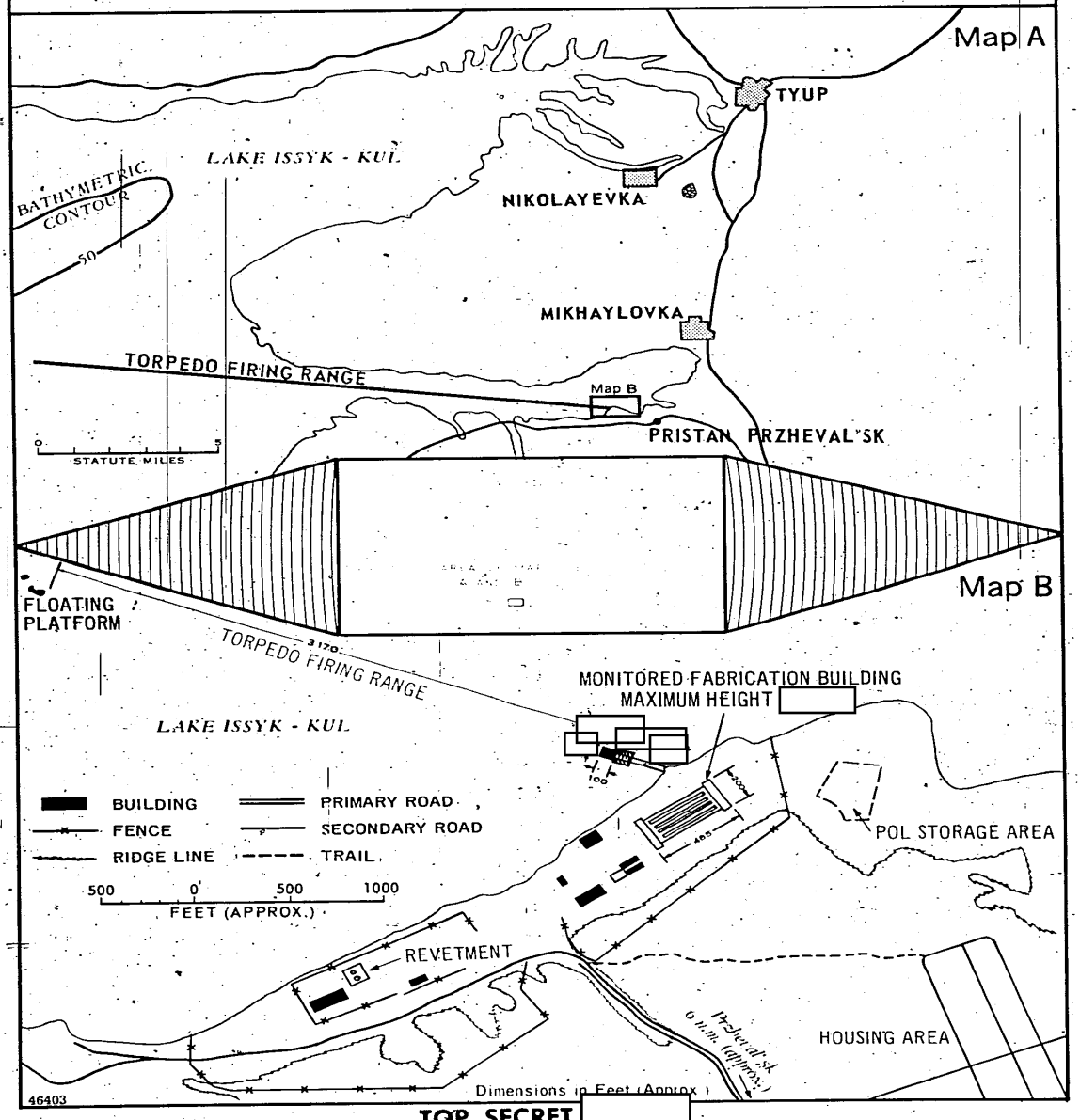
SOVIET TORPEDO TEST RANGE
LAKE ISSYK-KUL, USSR



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